princeton ecology and evolutionary biology

princeton ecology and evolutionary biology represents a dynamic and interdisciplinary field of study that explores the relationships between organisms and their environments, as well as the mechanisms driving biological diversity and adaptation over time. At Princeton University, the Ecology and Evolutionary Biology (EEB) program integrates cutting-edge research, innovative teaching methods, and a commitment to understanding the natural world through evolutionary and ecological perspectives. This article provides an in-depth overview of Princeton ecology and evolutionary biology, highlighting its academic programs, faculty expertise, research initiatives, and career opportunities for students. Additionally, the discussion covers key areas of study within the field, including evolutionary theory, ecological dynamics, and conservation biology. The content is designed to inform prospective students, researchers, and enthusiasts about the significance and scope of princeton ecology and evolutionary biology. The following sections will guide readers through the core components of the field as it is practiced and taught at Princeton.

Overview of Princeton Ecology and Evolutionary Biology

Princeton ecology and evolutionary biology encompasses the scientific study of organisms, their evolutionary histories, and their interactions with the environment. The program at Princeton is designed to foster a comprehensive understanding of biological diversity, evolutionary processes, and ecological systems. It emphasizes quantitative approaches and integrative methods to address fundamental questions about life on Earth. Students and researchers in this field engage with topics ranging from molecular evolution to ecosystem dynamics, making it a broad and multifaceted discipline. The department encourages interdisciplinary collaboration, bridging biology with fields such as environmental science, genomics, and computational biology. This holistic approach prepares students to tackle complex biological

challenges in both academic and applied contexts.

Academic Programs and Curriculum

The academic offerings in princeton ecology and evolutionary biology are structured to provide rigorous training in both theoretical and practical aspects of the field. Undergraduate and graduate programs are available, each tailored to develop expertise in ecology, evolutionary biology, or a combination of both.

Undergraduate Studies

Undergraduate students pursuing ecology and evolutionary biology at Princeton benefit from a diverse curriculum that includes foundational courses in genetics, organismal biology, and ecology. Advanced electives allow focused study on topics such as evolutionary genomics, population biology, and conservation science. Hands-on laboratory work and field research are integral components of the undergraduate experience, fostering critical thinking and scientific inquiry.

Graduate Programs

The graduate program emphasizes research and specialization, with doctoral candidates engaging in original investigations that contribute to the advancement of ecology and evolutionary biology. Graduate students receive mentorship from leading faculty and have access to state-of-the-art facilities and resources. Coursework includes seminars on evolutionary theory, ecological modeling, and experimental design, alongside opportunities for cross-disciplinary training.

Key Curriculum Components

- Evolutionary genetics and molecular evolution
- Population and community ecology
- Behavioral ecology and organismal biology
- Conservation biology and environmental science
- Quantitative methods and bioinformatics

Faculty and Research Excellence

The strength of princeton ecology and evolutionary biology is reflected in its distinguished faculty, who are recognized globally for their contributions to scientific knowledge. Faculty members bring expertise in diverse areas such as evolutionary developmental biology, ecosystem ecology, and theoretical biology. Their research often integrates empirical data with mathematical models to elucidate complex biological phenomena.

Notable Faculty Expertise

Faculty at Princeton conduct pioneering research on evolutionary dynamics, species interactions, and the genetic basis of adaptation. Their work frequently addresses pressing environmental issues, including climate change impacts and biodiversity loss. Faculty also play a critical role in training the next generation of scientists through mentorship and collaborative projects.

Interdisciplinary Collaboration

Princeton ecology and evolutionary biology fosters partnerships across departments and research centers, promoting interdisciplinary inquiry. Collaborations with ecology-focused institutes and computational biology groups enable innovative approaches to understanding biological systems. This cross-pollination enhances the depth and breadth of research output.

Research Areas within Ecology and Evolutionary Biology

Research in princeton ecology and evolutionary biology spans a wide array of topics that collectively deepen the understanding of life’s diversity and functioning. These areas integrate fieldwork, laboratory experiments, and theoretical modeling.

Evolutionary Theory and Genetics

Studies focus on the mechanisms of evolution, including natural selection, genetic drift, and gene flow. Research explores how genetic variation arises and is maintained within populations, and how it influences species adaptation and speciation.

Ecological Interactions and Ecosystem Dynamics

This area investigates relationships among organisms and their environments, including predator-prey dynamics, competition, and mutualism. Researchers analyze ecosystem processes such as nutrient cycling, energy flow, and the effects of environmental change on community structure.

Conservation Biology and Environmental Change

Conservation efforts are informed by research on species vulnerability, habitat fragmentation, and restoration ecology. Princeton scientists contribute to understanding human impacts on biodiversity and developing strategies to mitigate threats to ecological integrity.

Evolutionary Developmental Biology (Evo-Devo)

Research in evo-devo explores how developmental processes influence evolutionary change. This field sheds light on the genetic and molecular underpinnings of morphological diversity and adaptation across species.

Quantitative and Computational Approaches

The use of mathematical models, statistics, and computational tools is fundamental to analyzing complex biological data. These methods enable prediction and simulation of ecological and evolutionary phenomena at multiple scales.

Career Paths and Professional Development

Graduates of princeton ecology and evolutionary biology are well-equipped for a variety of professional roles in academia, industry, government, and non-profit sectors. The program emphasizes skills that are highly valued in research, policy, and environmental management.

Academic and Research Careers

Many alumni pursue doctoral studies or postdoctoral positions, contributing to scientific research and higher education. Careers in university research and teaching are common destinations for those with advanced degrees.

Environmental and Conservation Roles

Graduates often find opportunities in conservation organizations,

environmental consulting firms, and governmental agencies focused on natural resource management and biodiversity protection.

Biotechnology and Data Science

With strong training in genetics and computational biology, some graduates enter biotechnology companies or data-driven roles that apply ecological and evolutionary principles to innovation and problem-solving.

Skills Developed

- Critical thinking and scientific analysis
- Quantitative data analysis and modeling
- Field research and experimental design
- Communication and interdisciplinary collaboration
- Project management and grant writing

Frequently Asked Questions

What research areas are currently prominent in Princeton's Ecology and Evolutionary Biology department?

Princeton's Ecology and Evolutionary Biology department focuses on diverse research areas including evolutionary genetics, conservation biology, behavioral ecology, microbial ecology, and ecosystem dynamics.

How does Princeton integrate interdisciplinary approaches in its Ecology and Evolutionary Biology program?

Princeton integrates interdisciplinary approaches by combining molecular biology, computational modeling, fieldwork, and theoretical frameworks, encouraging collaboration across departments such as Environmental Studies, Genomics, and Computer Science.

What opportunities are available for undergraduate students studying Ecology and Evolutionary Biology at Princeton?

Undergraduates have access to hands-on research projects, field courses, internships, and seminars led by faculty experts, along with opportunities to participate in Princeton's summer research programs and study abroad.

Who are some notable faculty members in Princeton's Ecology and Evolutionary Biology department?

Notable faculty include experts like Dr. Diana Fisher, specializing in evolutionary genetics, and Dr. Stephen Wright, known for his work in population biology and adaptation.

How does Princeton support graduate students in Ecology and Evolutionary Biology?

Graduate students receive comprehensive mentorship, funding for research and conference travel, access to state-of-the-art lab facilities, and interdisciplinary collaboration opportunities to advance their academic and professional development.

What role does Princeton’s Ecology and Evolutionary Biology department play in addressing climate change?

The department conducts critical research on species adaptation to changing environments, ecosystem resilience, and biodiversity conservation, contributing valuable insights to inform climate change mitigation and policy.

Are there any notable recent publications or discoveries from Princeton's Ecology and Evolutionary Biology researchers?

Recent work includes groundbreaking studies on microbial ecosystem interactions and evolutionary responses to environmental stressors, published in leading journals such as Nature and Science, highlighting Princeton's leadership in the field.

Additional Resources

1. *Ecology and Evolutionary Biology at Princeton: Foundations and Frontiers*
This comprehensive volume explores the rich history and cutting-edge research

in ecology and evolutionary biology at Princeton University. It highlights key contributions from faculty and alumni, showcasing how Princeton has shaped modern understanding of biodiversity, adaptation, and ecosystem dynamics. The book also delves into ongoing interdisciplinary projects and future directions in the field.

2. *Principles of Ecology: Insights from Princeton Researchers*
Written by leading Princeton ecologists, this book presents fundamental ecological principles through the lens of current research conducted at the university. Topics include species interactions, population dynamics, and ecosystem processes, illustrated with case studies from local and global environments. It is designed for students and researchers seeking a solid grounding in ecological theory backed by empirical evidence.

3. *Evolutionary Biology: Concepts and Case Studies from Princeton*
This text combines theoretical frameworks with practical examples drawn from Princeton's evolutionary biology research community. It covers natural selection, genetic drift, speciation, and evolutionary development, emphasizing how these concepts are applied in contemporary studies. The book also features profiles of pioneering Princeton scientists who have advanced the field.

4. *Biodiversity and Conservation: A Princeton Perspective*
Focusing on the challenges of preserving biological diversity, this book presents research and conservation strategies developed by Princeton ecologists and evolutionary biologists. It discusses threats such as habitat loss and climate change, and highlights successful conservation programs. Readers gain insight into the scientific basis for policy decisions and the role of academic institutions in conservation efforts.

5. *Behavioral Ecology: Studies from Princeton's Field and Lab*
This book explores the ecological and evolutionary basis of animal behavior through studies conducted by Princeton researchers. Topics include mating systems, foraging strategies, social behavior, and communication. Integrating field observations with experimental data, it offers a holistic view of how behavior evolves in response to ecological pressures.

6. *Marine Ecology and Evolution: Research at Princeton's Marine Stations*
Highlighting research conducted at Princeton's affiliated marine laboratories, this volume examines the ecology and evolution of marine organisms and ecosystems. It covers coral reef dynamics, marine biodiversity, and evolutionary adaptations to ocean environments. The book also discusses human impacts on marine systems and conservation efforts.

7. *Genetics and Evolutionary Theory: Contributions from Princeton Scientists*
This book provides an in-depth look at the genetic mechanisms underlying evolution, with a focus on work from Princeton researchers. It includes discussions on molecular evolution, population genetics, and genomics, illustrating how genetic data inform evolutionary hypotheses. The text is suitable for advanced students and professionals interested in evolutionary genetics.

8. *Ecosystem Ecology: Princeton's Approach to Understanding Environmental Interactions*
Focusing on ecosystem-level processes, this book presents research on nutrient cycling, energy flow, and ecosystem resilience led by Princeton ecologists. It emphasizes interdisciplinary approaches combining biology, chemistry, and environmental science. Case studies demonstrate how ecosystems respond to natural and anthropogenic changes.

9. *Climate Change Biology: Insights from Princeton's Ecology and Evolutionary Biology Department*
This timely book addresses the biological impacts of climate change, drawing on research from Princeton experts. It covers species range shifts, phenological changes, and evolutionary responses to changing climates. The authors discuss predictive modeling and conservation strategies aimed at mitigating climate change effects on biodiversity.

Princeton Ecology And Evolutionary Biology

princeton ecology and evolutionary biology: The Princeton Guide to Evolution David A. Baum, Douglas J. Futuyma, Hopi E. Hoekstra, Richard E. Lenski, Allen J. Moore, Catherine L. Peichel, Dolph Schluter, Michael C. Whitlock, 2017-03-21 The essential one-volume reference to evolution The Princeton Guide to Evolution is a comprehensive, concise, and authoritative reference to the major subjects and key concepts in evolutionary biology, from genes to mass extinctions. Edited by a distinguished team of evolutionary biologists, with contributions from leading researchers, the guide contains some 100 clear, accurate, and up-to-date articles on the most important topics in seven major areas: phylogenetics and the history of life; selection and adaptation; evolutionary processes; genes, genomes, and phenotypes; speciation and macroevolution; evolution of behavior, society, and humans; and evolution and modern society. Complete with more than 100 illustrations (including eight pages in color), glossaries of key terms, suggestions for further reading on each topic, and an index, this is an essential volume for undergraduate and graduate students, scientists in related fields, and anyone else with a serious interest in evolution. Explains key topics in some 100 concise and authoritative articles written by a team of leading evolutionary biologists Contains more than 100 illustrations, including eight pages in color Each article includes an outline, glossary, bibliography, and cross-references Covers phylogenetics and the history of life; selection and adaptation; evolutionary processes; genes, genomes, and phenotypes; speciation and macroevolution; evolution of behavior, society, and humans; and evolution and modern society

princeton ecology and evolutionary biology: *Eco-evolutionary Dynamics* Andrew P. Hendry, 2016-12-06 In recent years, scientists have realized that evolution can occur on timescales much shorter than the long lapse of ages emphasized by Darwin—in fact, evolutionary change is occurring all around us all the time. This book provides an authoritative and accessible introduction to eco-evolutionary dynamics, a cutting-edge new field that seeks to unify evolution and ecology into a

common conceptual framework focusing on rapid and dynamic environmental and evolutionary change. Andrew Hendry covers key aspects of evolution, ecology, and their interactions. Topics range from natural selection, adaptive divergence, ecological speciation, and gene flow to population and community dynamics, ecosystem function, plasticity, and genomics. Hendry evaluates conceptual and methodological approaches, and draws on empirical data from natural populations—including those in human-disturbed environments—to tackle a number of classic and emerging research questions. He also discusses exciting new directions for future research at the intersection of ecology and evolution. An invaluable guide for students and researchers alike, Eco-evolutionary Dynamics reveals how evolution and ecology interact strongly on short timescales to shape the world we see around us.

princeton ecology and evolutionary biology: Princeton Alumni Weekly Jesse Lynch Williams, Edwin Mark Norris, 1991

princeton ecology and evolutionary biology: The Guide to Graduate Environmental Programs , 2013-04-22 The Guide to Graduate Environmental Programs provides over 160 profiles of graduate programs across the country that offer curricula related to the environment. Because it was impossible to include every program in the book, and because these programs are constantly changing, Island Press welcomes suggested changes and additions to the profiles. While Island Press is not the official author of the book, we are eager to receive new or updated information to be included in the next edition. Drawing from this information, Island Press has created an online listing of programs that were not profiled in the book. To submit your contribution, either fill out the postcard included in the book itself, or e-mail the name, address, phone number, and e-mail address of the contact person for that program; someone will contact that person for further information as the second edition is developed. If you would like to correct an error or to provide specific update information, please e-mail that information or return the card included in the book. Following is a description of how the book was researched and the profiles compiled: The research process began with a list, drawn up by career center staff at University of California at Santa Barbara, of 412 environmental programs, departments, and schools within universities across the country. The list was based on a literature search, queries over the Internet, and contact with environmental professionals and associations. Certificate-only programs were not included. Selection preference was given to programs mentioned repeatedly by environmental professionals, and to those drawing a more diverse student body. Postcards requesting information and course catalogues were sent to all 412 programs. A survey was mailed to faculty representing each program. Of the 412 graduate programs queried, 156 programs completed and returned their surveys. Each completed survey was reworked into a profile. Schools that did not respond to the mailing were contacted twice by phone to remind them to return the survey. To supplement this information, and to ensure that the most noteworthy programs were included in the guide, additional profiles were compiled for a select number of key programs that failed to return their surveys. These latter profiles were based on literature review and personal interviews. In all, each program was contacted three times – once by mail and twice by phone – to encourage them to submit their surveys, and to verify and update information. The absence of a particular profile, or segment of a profile, reflects no editorial judgement on the part of the authors. Rather, if a specific program was not profiled, the most likely explanation is that the program in question did not return its survey. If you have information on other graduate environmental programs, please pass that information on to us, so that we can include them in future editions of the guide. Most of the information provided was accurate as of November 1994 – the date by which the surveys were completed – and some follow-up verification was conducted during the summer of 1996, before the book went into production. There are an ever-expanding number of programs in the environmental field, and existing programs are constantly evolving. Readers should therefore expect to continue to encounter ongoing changes in names, titles, and phone numbers.

princeton ecology and evolutionary biology: *The Geometry of Ecological Interactions* Ulf Dieckmann, Richard Law, Johan A. J. Metz, 2000-05-04 The field of theoretical ecology has expanded

dramatically in the last few years. This volume gives detailed coverage of the main developing areas in spatial ecological theory, and is written by world experts in the field. Integrating the perspective from field ecology with novel methods for simplifying spatial complexity, it offers a didactical treatment with a gradual increase in mathematical sophistication from beginning to end. In addition, the volume features introductions to those fundamental phenomena in spatial ecology where emerging spatial patterns influence ecological outcomes quantitatively. An appreciation of the consequences of this is required if ecological theory is to move on in the 21st century. Written for reseachers and graduate students in theoretical, evolutionary and spatial ecology, applied mathematics and spatial statistics, it will be seen as a ground breaking treatment of modern spatial ecological theory.

princeton ecology and evolutionary biology: *Endless Forms* Daniel J. Howard, Stewart H. Berlocher, 1998 Speciation is one of the great themes of evolutionary biology. It is the process through which new species are born and diversity generated. Yet for many years our understanding of the process consisted of little more than a perception that if populations are isolated geographically, they will diverge genetically and may come to form new species. This situation began to change in the 1960s as an increasing number of biologists challenged the exclusivity of allopatric speciation and began to probe more deeply into the actual process by which divergence occurs and reproductive isolation is acquired. This focus on process led to many new insights, but numerous questions remain and speciation is now one of the most dynamic areas of research in modern evolutionary biology. This volume presents the newest research findings on speciation bringing readers up to day on species concepts, modes of speciation, and the nature of reproductive barriers. It also discusses the forces that drive divergence of populations, the genetic control of reproductive isolation, and the role played by hybrid zones and hybridization in speciation.

princeton ecology and evolutionary biology: Adaptive Genetic Variation in the Wild Timothy A. Mousseau, Barry Sinervo, John A. Endler, 2000-01-13 Two of the great mysteries of biology yet to be explored concern the distribution and abundance of genetic variation in natural populations and the genetic architecture of complex traits. These are tied together by their relationship to natural selection and evolutionary history, and some of the keys to disclosing these secrets lie in the study of wild organisms in their natural environments. This book, featuring a superb selection of papers from leading authors, summarizes the state of current understanding about the extent of genetic variation within wild populations and the ways to monitor such variation. It proposes the idea that a fundamental objective of evolutionary ecology is necessary to predict organism, population, community, and ecosystem response to environmental change. In fact, the overall theme of the papers centers around the expression of genetic variation and how it is shaped by the action of natural selection in the natural environment. Patterns of adaptation in the past and the genetic basis of traits likely to be under selection in a dynamically changing environment is discussed along with a wide variety of techniques to test for genetic variation and its consequences, ranging from classical demography to the use of molecular markers. This book is perfect for professionals and graduate students in genetics, biology, ecology, conservation biology, and evolution.

princeton ecology and evolutionary biology: *From Energetics to Ecosystems: The Dynamics and Structure of Ecological Systems* N. Rooney, K.S. McCann, D.L.G. Noakes, 2006-12-02 Ecosystems are complex and enigmatic entities that are ultimately our life support systems. Understanding these systems to the point of being able to predict their behaviour in the face of perturbations requires that researchers adopt a number of strategies that vary in both approach and scale. This book, in a sense, is representative of some of the developments that have unfolded when math and physics met ecology. Here, some of the world’s leading ecologists examine ecosystems from theoretical, experimental, and empirical viewpoints, from energetics to ecosystems. The book begins with simplifying and synthesizing nature’s complex relationships. It then moves on to explore the mapping between food web structure and function and ends with the role of theory in integrating different research areas. From the breadth of systems analyzed to the rigor of

approaches taken, this book is not only a useful resource for students and researchers in ecology, but serves as a fitting tribute to the life and work of Peter Yodzis.

princeton ecology and evolutionary biology: Encyclopedia of Evolutionary Biology , 2016-04-14 Encyclopedia of Evolutionary Biology, Four Volume Set is the definitive go-to reference in the field of evolutionary biology. It provides a fully comprehensive review of the field in an easy to search structure. Under the collective leadership of fifteen distinguished section editors, it is comprised of articles written by leading experts in the field, providing a full review of the current status of each topic. The articles are up-to-date and fully illustrated with in-text references that allow readers to easily access primary literature. While all entries are authoritative and valuable to those with advanced understanding of evolutionary biology, they are also intended to be accessible to both advanced undergraduate and graduate students. Broad topics include the history of evolutionary biology, population genetics, quantitative genetics; speciation, life history evolution, evolution of sex and mating systems, evolutionary biogeography, evolutionary developmental biology, molecular and genome evolution, coevolution, phylogenetic methods, microbial evolution, diversification of plants and fungi, diversification of animals, and applied evolution. Presents fully comprehensive content, allowing easy access to fundamental information and links to primary research Contains concise articles by leading experts in the field that ensures current coverage of each topic Provides ancillary learning tools like tables, illustrations, and multimedia features to assist with the comprehension process

princeton ecology and evolutionary biology: The New Princeton Companion Robert K. Durkee, 2022-04-05 The definitive single-volume compendium of all things Princeton The New Princeton Companion is the ultimate reference book on Princeton University’s history and traditions, personalities and key events, and defining characteristics and idiosyncrasies. Robert Durkee brings a unique insider’s perspective to the school’s dramatic transformation over the past five decades, showing how it has become more multicultural, multiracial, and multinational, all the while advancing its distinctive academic mission. Featuring more than 400 entries presented alphabetically, this wide-ranging collection covers topics from academic departments, cultural resources, and student organizations, hoaxes, and pranks to athletic teams, the town of Princeton, and university presidents. There are entries on coeducation, women, people of color, traditionally underrepresented groups, the diversification of campus iconography, and the protest activity that helped to usher in many of these changes. This marvelous compendium also includes annotated maps tracing the growth of the campus over more than two and a half centuries, lists ranging from prizewinners of many kinds to Olympic medalists, and an illustrated calendar that highlights something that happened in Princeton’s history on every day of the year. Now completely updated, revised, and expanded from the classic 1978 edition, The New Princeton Companion tells you virtually everything there is to know about this remarkable institution of higher learning, revealing what it stands for, what it aspires to, and how it evolved from a tiny colonial college to one of the most acclaimed research universities in the world.

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historical, morphological, molecular, behavioral, and philosophical perspectives

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princeton ecology and evolutionary biology: *Reproductive Strategies in Insects* Omkar, Geetanjali Mishra, 2022-02-15 Reproduction is one of the most inherent tasks that all living organisms are actively involved in. It forms the backbone of their existence with all evolutionary energies directed over billion years of creation into maximizing reproductive effort. For so simple and directed a need such as maximizing reproduction, it is interesting to see how much diversity and complexity exists in this task. Each organism despite having the same end goal employs different strategies. The complexities, intricacies and strategies of successful reproduction while being extremely fascinating are equally befuddling. Reproductive Strategies in Insects provides an expansive critical look at the reproductive strategies of the most diverse group of animals, the insects. Insects which inhabit myriad niches in all ecosystems except the oceans, show the most diverse reproductive strategies ranging from simplest to most complex. Reproductive strategies, viz., search for mates, number of mates, display of mate quality, assessment of mate quality, acceptance of mate, rejection of mates, forced copulations, the fight for paternity pre, during and post copula, the modulation of paternity, ovipositional strategies and parental care are described in detail in this book. Also, each strategy in analyzed in relation to its morphological, physiological, ethological, ecological and evolutionary aspects. Features: Covers a wide variety of reproductive strategies, A detailed step by step description of reproductive strategies. Discusses morphological, physiological, ethological, ecological and evolutionary aspects. Modulation of these strategies and responsible modulatory factors are also discussed. Well-illustrated. Recent research results and probable future research directions. This is a niche reference book for ethologists, biologists studying behavioural evolution and entomologists. It may also be used as a textbook for a graduate level course in behaviour.

princeton ecology and evolutionary biology: Rules and Exceptions in Biology: from Fundamental Concepts to Applications Alfredo V. Peretti, Lucía S. Calbacho-Rosa, Paola A. Olivero, Mariela A. Oviedo-Diego, David E. Vrech, 2024-05-17 This is the first book to cover and explore the rules and exceptions in biology. It presents past and current perspectives on the subject and discusses the various situations of transition from rule to exception and vice versa. In doing so,

the book fills a gap in the scientific literature and stimulates useful and valuable discussions among researchers working in biology worldwide. The chapters begin with a theoretical framework, followed by the main topic(s) or question(s), and a summary of previous work on the topic. Examples are discussed, with concluding remarks and suggestions for future research. A section with key concepts is included at the end of each chapter, allowing the reader to jump directly to the most important findings or observations. Each chapter is written to be used as a reference by graduate students and professionals from a variety of scientific disciplines (e.g. behavior, ecology, evolution, and systematics).

princeton ecology and evolutionary biology: Conceptual Change in Biology Alan C. Love, 2014-11-07 This volume explores questions about conceptual change from both scientific and philosophical viewpoints by analyzing the recent history of evolutionary developmental biology. It features revised papers that originated from the workshop Conceptual Change in Biological Science: Evolutionary Developmental Biology, 1981-2011 held at the Max Planck Institute for the History of Science in Berlin in July 2010. The Preface has been written by Ron Amundson. In these papers, philosophers and biologists compare and contrast key concepts in evolutionary developmental biology and their development since the original, seminal Dahlem conference on evolution and development held in Berlin in 1981. Many of the original scientific participants from the 1981 conference are also contributors to this new volume and, in conjunction with other expert biologists and philosophers specializing on these topics, provide an authoritative, comprehensive view on the subject. Taken together, the papers supply novel perspectives on how and why the conceptual landscape has shifted and stabilized in particular ways, yielding insights into the dynamic epistemic changes that have occurred over the past three decades. This volume will appeal to philosophers of biology studying conceptual change, evolutionary developmental biologists focused on comprehending the genesis of their field and evaluating its future directions, and historians of biology examining this period when the intersection of ev olution and development rose again to prominence in biological science.

princeton ecology and evolutionary biology: *Principles of Animal Behavior, 4th Edition* Lee Alan Dugatkin, 2020-01-15 Since the last edition of this definitive textbook was published in 2013, much has happened in the field of animal behavior. In this fourth edition, Lee Alan Dugatkin draws on cutting-edge new work not only to update and expand on the studies presented, but also to reinforce the previous editions' focus on ultimate and proximate causation, as well as the book's unique emphasis on natural selection, learning, and cultural transmission. The result is a state-of-the-art textbook on animal behavior that explains underlying concepts in a way that is both scientifically rigorous and accessible to students. Each chapter in the book provides a sound theoretical and conceptual basis upon which the empirical studies rest. A completely new feature in this edition are the Cognitive Connection boxes in Chapters 2–17, designed to dig deep into the importance of the cognitive underpinnings to many types of behaviors. Each box focuses on a specific issue related to cognition and the particular topic covered in that chapter. As Principles of Animal Behavior makes clear, the tapestry of animal behavior is created from weaving all of these components into a beautiful whole. With Dugatkin's exquisitely illustrated, comprehensive, and up-to-date fourth edition, we are able to admire that beauty anew.

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